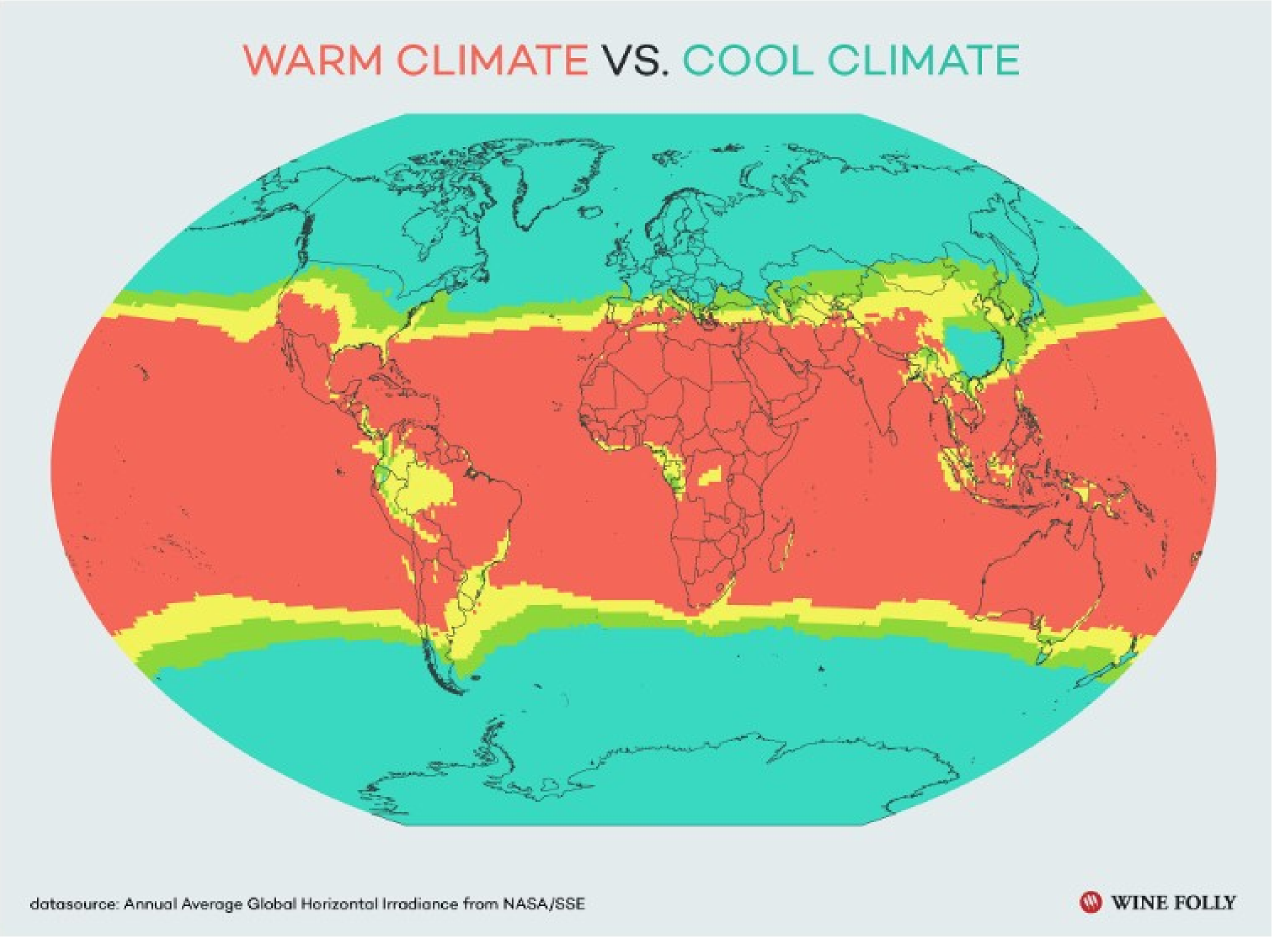
CREATING TOMORROW'S HERITAGE ROSES

Girija and M. S. Viraraghavan

A presentation held 2019 in South Africa


WARM CLIMATE VS. COOL CLIMATE
datasource: Annual Average Global Horizontal Irradiance from NASA/SSE
WINE FOLLY

The focus of this talk is on the hybridization of new kinds of Teas, Chinas and Giganteas. These classes of roses are the typical heritage roses of the warmer parts of the world—such areas include southern USA, Southern France, Italy Spain and Portugal as well as the entire area of southern Asia, extending from south India to Thailand, Cambodia Vietnam, Malaysia, Indonesia, Singapore, —we may add that this is the region which is going to be the economic powerhouse of the future, but sadly lacking in roses suitable for their warm climates. Apart from these parts of the Old World, countries like Australia and New Zealand are eminently suited for growing the Tea rose group. In that fascinating book Roses at the Cape of Good Hope, written by your great rosarian Gwen Fagan,there are vivid descriptions of the same kinds of heritage roses which are still prized in many areas of your own country.

You may well ask, what is the need to create new Teas, Chinas and Giganteas? Do we not have enough roses of these classes which we have inherited from the golden era of such rose breeding – the end of the 19th century and the early parts of the 20th century? To this the simple answer is that breeding of such roses is very much an unfinished task. We may add, somewhat provocatively, that, unlike the modern Hybrid Teas where the genetic potential for further improvement is nearly exhausted, there is great scope to continue breeding of these older classes of roses which, to reiterate, was work suddenly stopped midway.

Why did the breeding of Teas, Chinas and Giganteas (we shall refer to them all as ‘ the Tea rose group’) suddenly cease in the early part of the 20th century? This happened because the breeding of the Tea rose group was directly linked with the lifestyle of the very wealthy in Northern Europe and Great Britain. In order to escape the rigours of the northern cold, the well to do had adopted a lifestyle wherein they moved during winter and early Spring to warmer climes, for e.g., the French Riviera, and parts of Italy and Spain where many of them owned properties. . Naturally these estates had to have beautiful gardens of subtropical plants including roses. And the roses which could be grown easily in these areas and which flowered early in the year were those of the Tea rose group. Eminent rosarians, like, for instance, the American, J.H.Nicolas, who continued to have strong connections with France, referred to how the landed gentry in northern France would move, from winter to early Spring, to the Riviera to their beautifully landscaped properties, full of Tea roses. Another instance is Laurence Johnstone of Hidcote Manor in England who had a property in Menton. There were many like him. Apart from the Teas, the hybrid giganteas, which naturally flowered very early in the year and which were suited for the climate of southern France provided their gardens with roses. This lifestyle led to the tremendous interest among rose breeders in creating new varieties of the Tea rose group.

Suddenly everything changed with the First World War which, as many of us would be aware, was marked by the loss of human life on a scale never seen before, and perhaps never thereafter. We can imagine the disastrous economic consequences of this War which was followed a few years later by the Great Depression of the 1930s. So, the breeding of these warm climate roses came to an abrupt halt, as the lifestyles of even the very rich altered drastically.

For these reasons, further breeding of warm climate roses stopped, though, by hindsight, we can understand that, from the plant breeding point of view, there was ample scope to continue work with them .In other words, the scope for creating newer varieties was there but the economic incentives to do so no longer existed. An example would be that incomparable apricot orange Tea, 'Lady Hillingdon', hybridised in 1911, just before World War 1,which remained unrivalled as the most sought after rose of that very attractive colour.

MARECHAL NIEL 1864

LADY HILLINGDON 1910

CLEMENTINA CARBONIERI 1913

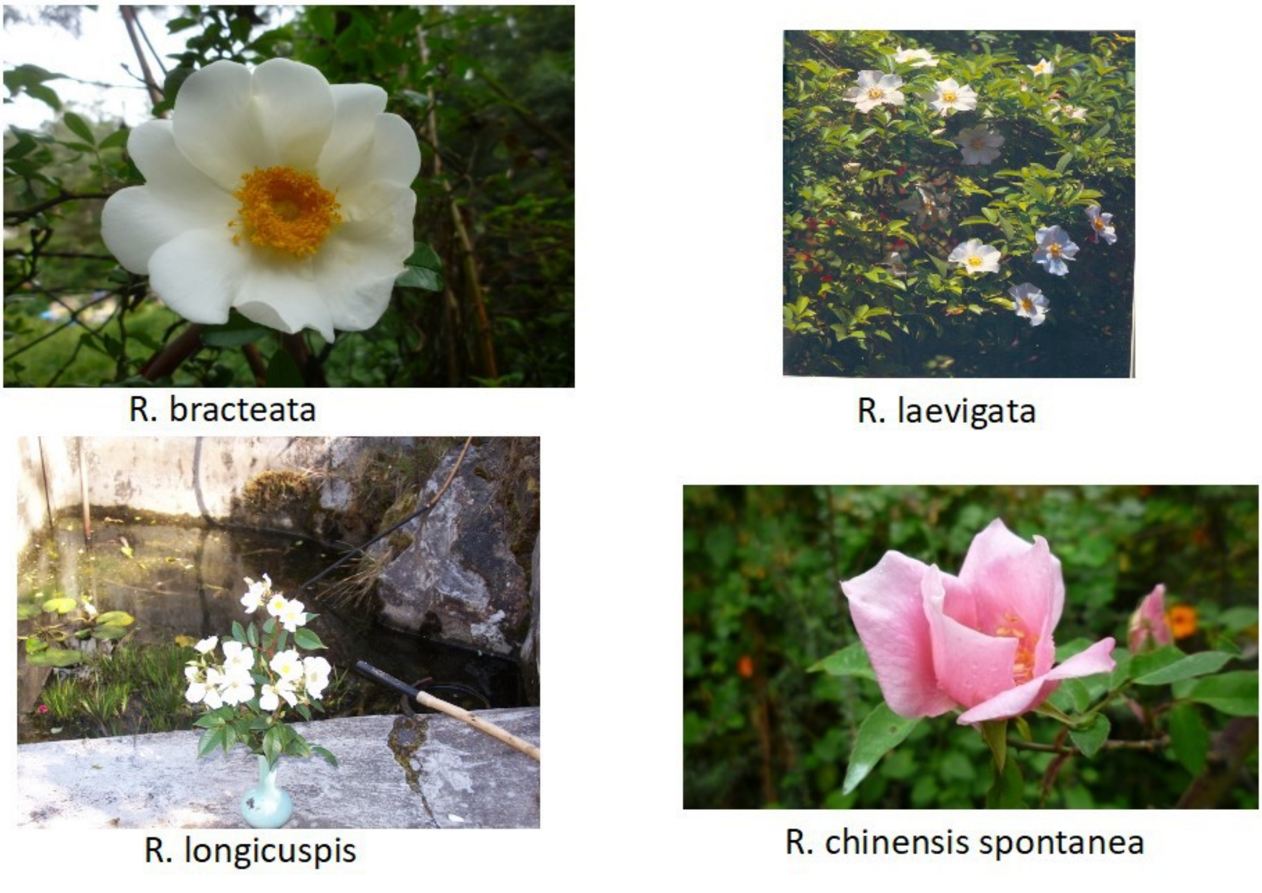
ROSETTE DU LIZY 1922

Other roses of the same background which are unrivalled to this day include 'Maréchal Niel', 'Clementina Carboneri' and 'Rosette du Lizy'. If breeding of these types of roses had continued, our warm climate gardens would have been that much more attractive.

Meanwhile the Hybrid Teas arrived on the scene - they did not have the limitation of being suited only for the warm climatic areas of Europe. Again, the great rose breeders of the time were based in northern Europe like Germany, Britain and of course France. So the rose breeding fraternity changed over completely to the breeding of Hybrid Teas.

Just as the breeding of Tea roses was overwhelmed by the World War and the Depression, the breeding of Hybrid Teas is likely to face unexpected challenges in the coming years. The first is the emergence of new economies with ever increasing purchasing powers – these new economies will lie in the warmer parts of the world where the H.T.s bred for so long with cold climates in mind will not be the appropriate roses. On the other hand, the Tea rose group will be the favoured kind for these newly developing areas. This apart, we have the phenomenon of climate change with the world getting substantially warmer. This is no figment of the imagination or a phantom bogey created by mad scientists - it is very much a reality. To give a few examples. The wine grape growing areas in places as far apart as Bordeaux in France and Chile in the southern extremity of South America are already being shifted to cooler areas as the conventional locations are getting too warm for optimum yield of wine grapes. The yield of apples in the Kulu Valley located in the Western Himalayas, is coming down as sufficient chilling is not there in the winters. On our own mountain top – we live at 2200 metres altitude - plants which were earlier found only at 1500 m and below, have climbed to the top in the last decade – plants like bougainvillea, hibiscus, tecoma, forms of ipomea, to name just a few. The reality of global warming cannot be wished away. And a warmer world will certainly require more roses of our favourite classes, but not Hybrid Teas.

We come now to our own programme of creating new roses for warm climates which will, hopefully, in the fullness of time, be among the heritage roses of tomorrow!! Our programme is somewhat different from the inspiration which has led to the emergence of that glorious group of roses, with the heritage rose form and fragrance of the gallicas and damasks, but with the bonus of continuous blooming. We are referring to David Austin’s English Roses. The difference in our programme will be that we are continuing to produce Teas, Chinas and Hybrid giganteas, but particularly in the hybrid gigantea group, proceeding beyond the F1 generation where work on most of the traditional Hybrid giganteas, for e.g., 'Belle Portugaise', had stopped.



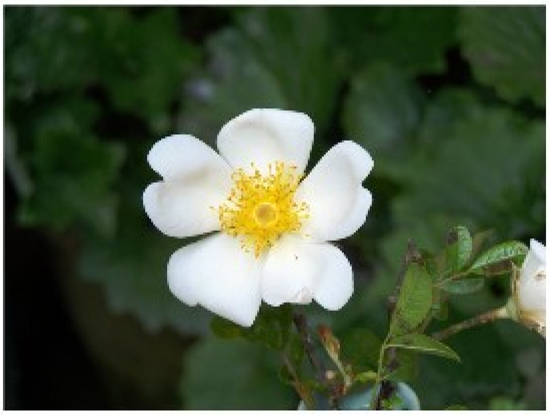
R. bracteata

R. laevigata

R. longicuspis

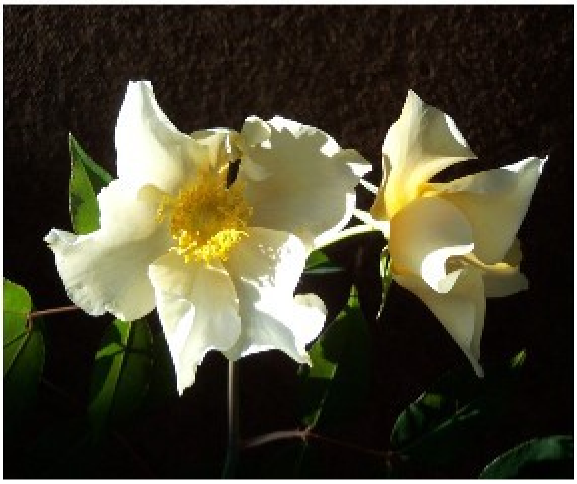
R. chinensis spontanea

Warm climate rose species



ROSA CLINOPHYLLA

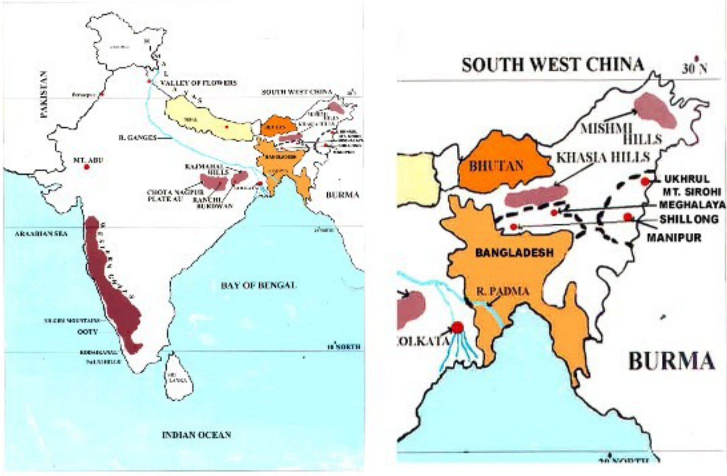
ROSA GIGANTEA



Rosa clinophylla and Rosa gigantea - Two Indian rose species

One other feature of the new programme is the enlarging of the genetic base of the warmer climate rose group by bringing in rose species specially adapted to warmth, such as *R. clinophylla, R. bracteata, R. laevigata* and several others. Even in the gigantea group the new hybrids would be the result of proceeding beyond the

Map showing where *R.gigantea* was found



R.gigantea habitat

rohi Lily- *Lilium mackliniae*

R. gigantea climbing tree

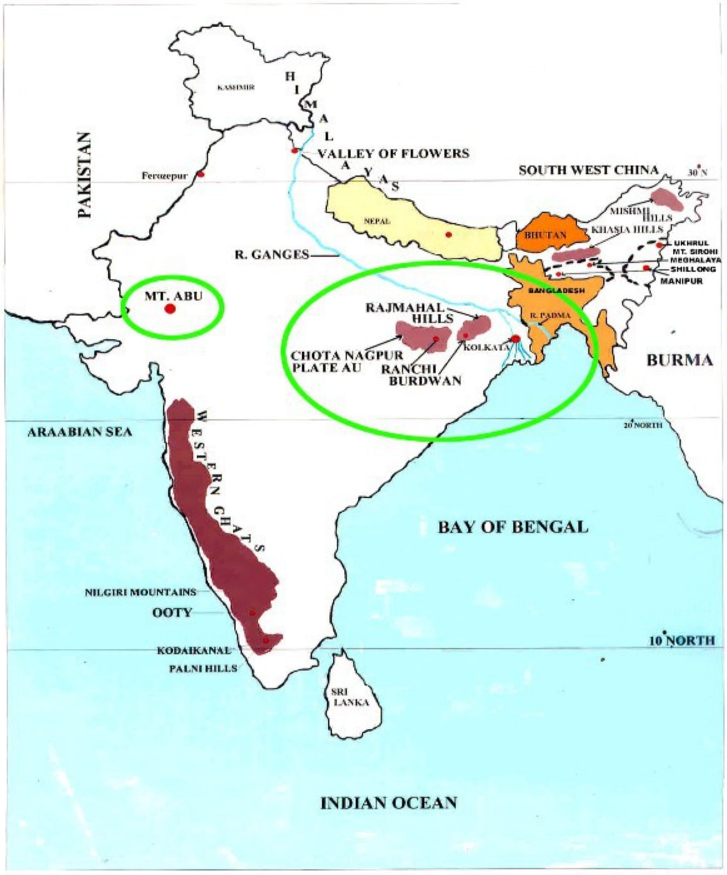
first generation crosses with the objective of achieving the new combinations of genes which will lead to new colours and habits of growth.

It should be noted that the *Rosa gigantea* used by us is the Manipur form collected personally from the lower slopes of Mount Sirohi beyond Ukhrul, quite near the border with Myanmar (Burma). This form of *Rosa gigantea* is probably somewhat cold hardier as the collection was made from a place 5° further north and most likely from a higher altitude than the original Burmese form collected by General Sir Henry Collett in the Shan Hills of Burma (and which was the form used in early gigantea breeding by Cayeaux and Alister Clark). Seedlings of *R. gigantea* raised from seed collected on this expedition in 1991 vary somewhat in colour from almost white to almost apricot yellow, at the bud stage - a feature also referred to by Peter Knox Shaw in his article in your recent heritage Rose Annual.

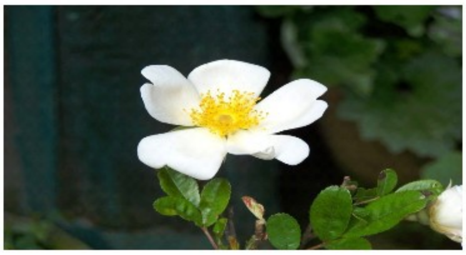
Some more detail on *Rosa clinophylla*, which is perhaps the world's only tropical rose species is warranted.

Rosa clinophylla

***R.clinophylla*, Bengal form---- habitat: warm moist climate**



***R.clinophylla* habitat; typical landscape of the interface of the Himalayas and Bengal plains**



Three forms exist, adapted to warm moist climate (Bengal form), warm dry climate (Chota-Nagpur form) and subtropical form.

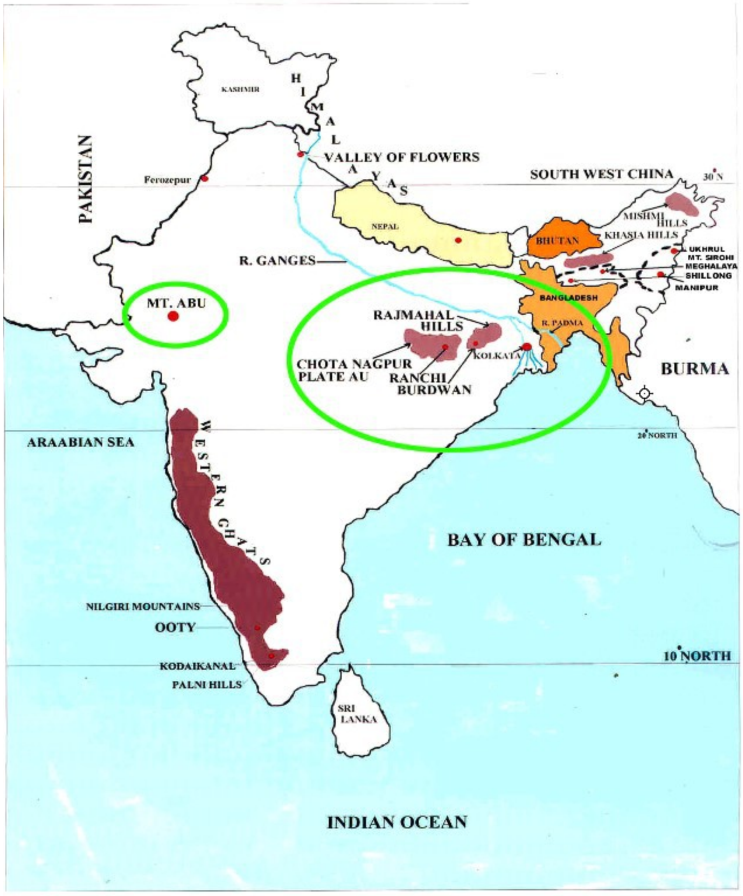
The Bengal form is, by any criterion, the most tropical form of this species. Its habitat is described, with eye-catching detail in the ’Himalayan Journals’ of J. D. Hooker, the famous plant explorer who came upon this species when his explorations brought him from the foothills of the Himalayas to the plains of North Bengal, by the banks of a tributary of the River Ganges :

“*On the 7th of May (1850), about 80 miles in a straight line from the foot of the Himalaya, we found the stratified sandy banks, which had gradually risen to a height of thirteen feet, replaced by the hard alluvial clay of the Gangetic valley, which underlies the sand: the stream contracted, and the features of its banks were materially improved by a jungle of tamarisk, wormwood (Artemisia), and white rose bushes (Rosa involucrata, now called R.clinophylla), whilst mango trees became common, with tamarinds, banyans and figs. Date and caryota palms, and rattan canes, grew in the woods, and orchids on the trees, which were covered with a climbing fern (Acrosticum scandens), so that we easily doubled our flora of the river banks before arriving at Maldah’*

Expanding on Hooker’s observation we may point out that this species is typically found in flood plains and the islands of the Ganges, which are very often submerged during the monsoon rains.

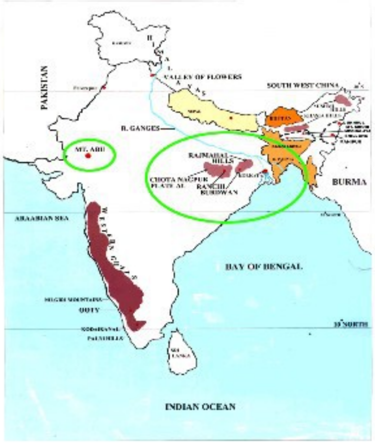
In some ways getting a plant of this variant proved to be the most difficult of searches. Even in the late 19th century the species was characterised by the unusual feature of appearing in profusion where the swampy conditions suited, but again showing up very much further on – many apparently suitable habitats were completely bereft of the rose. With the rapid spread of agriculture, its habitat is under grave threat, but to our good fortune, the well known horticulturist of Bengal, Dr. S. Bannerjee, had collected a plant quite near where Hooker had observed it – at the point where the River Padma branches off from the main Ganges and flows towards what is now Bangladesh. In his tiny garden in Kolkata grew a solitary plant, perhaps the only one in cultivation when we began our search from 1967. It is rather extraordinary that even the Botanical Survey of India could not give us any information. Finally, in 1990, (after two decades!) Dr. N.C. Sen, rosarian of Asansol (in West Bengal) and our friend, was able to send us a plant, made from the original plant of Dr. Bannerjee.

R. clinophylla **Chota Nagpur form-habitat: warm dry climate**



Narender Singh of Ranchi would have found this form of clinophylla here

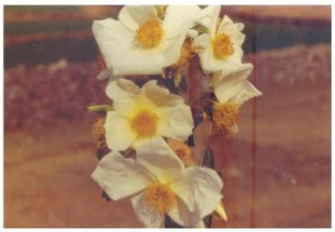
The Chota Nagpur form of *R. clinophylla* had reached us earlier. Mr. Narender Singh of Ranchi, also a rose enthusiast, while on a hunting expedition, had camped by the side of a forest stream in the Chota Nagpur Plateau of Bihar State. In the early dawn light he saw, to his surprise, a rose growing by the stream's side. He recalled our interest in *R.clinophylla*, and correctly identifying this rose, he sent us some cuttings, from which our first breeding work with this species began.



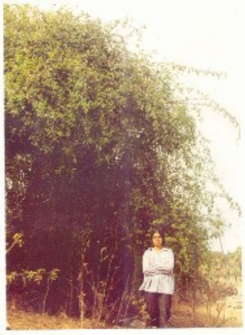
***R. clinophylla* sub tropical form at Mt Abu**

Mount Abu Rajasthan

Mount-Abu lake margin where we found the species



R.clinophylla- sometimes called *R.lyelli*



Bush of R. Clinophylla, Mount Abu form, growing on field boundary, Oriya Village, Mt.Abu. Note the size of the plant.

Rosa clinophylla - Mount Abu form

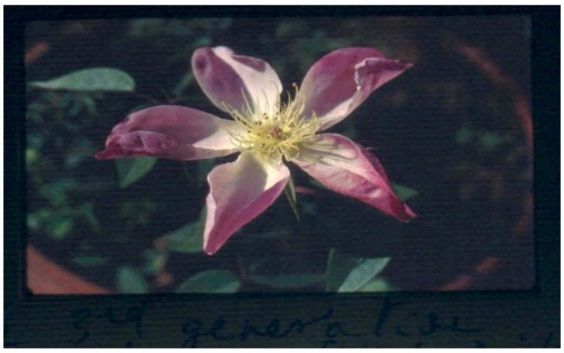
Looking for the 3rd form of *R. clinophylla*, the low mountain form, involved an expedition to one of the last reported findings of this rose on Mount Abu, rising to 1300 m., located, somewhat unpromisingly in the Thar Desert of Rajasthan State. The species was found here in 1888 by a George King. He gave no more details as to the location .So off we went to Mt. Abu and explored likely places, mainly the banks of streams, for several days without any success. Two additional problems made our search difficult. The State Forest Department had planted large areas with *R.multiflora*, which led to considerable confusion. The other problem was that, in the language of this area, Hindi, all roses are referred to as 'gulab' which refers to a pink rose, and we were looking for a white rose. Ultimately, we did what we should have done earlier- travelling around the forest with a local farmer, whom we met on the way and whom we persuaded to accompany us. Our somewhat reluctant guide proved to be much more knowledgeable than at first sight. He led us to some agricultural fields next to a lake, and lo and behold, the boundaries of the fields were planted with hedges of our rose.

There were even a few blooms to confirm the identification, though it was well past the main flowering period – it was mid-winter. There were many other bushes of the rose next to the lake margin and we were able to collect a few, as well as take photographs of the flowers. These were borne in corymbs, unlike the usual solitary flowers of the other two forms. But why does this form prefer slightly cooler habitat? We later read the observation of the noted Belgian taxonomist of the 19th century, M. Francois Crépin, who felt that this variant, also called *R. lyelli*, was probably a hybrid with *R. moschata.*

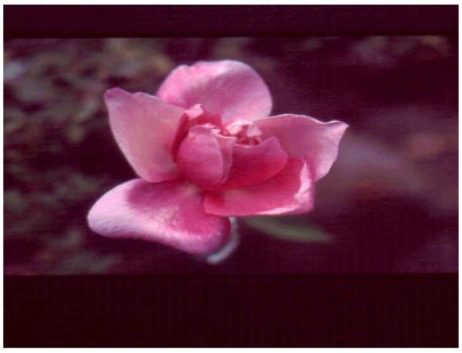
We now come to the various stages by which the garden roses were evolved starting from the original wild species.

Taking up *R. clinophylla* first, we would like to point out that genetically this species is very far removed from the modern garden rose. There is also the problem that *R. clinophylla* is a diploid and modern roses are tetraploid. Its only close relative is *R. bracteata*, which is a species of Myanmar and Southern China though well established in several places in India.

***R.clinophylla* in water**



Mrs B.R.Cant x *R.clinophylla*

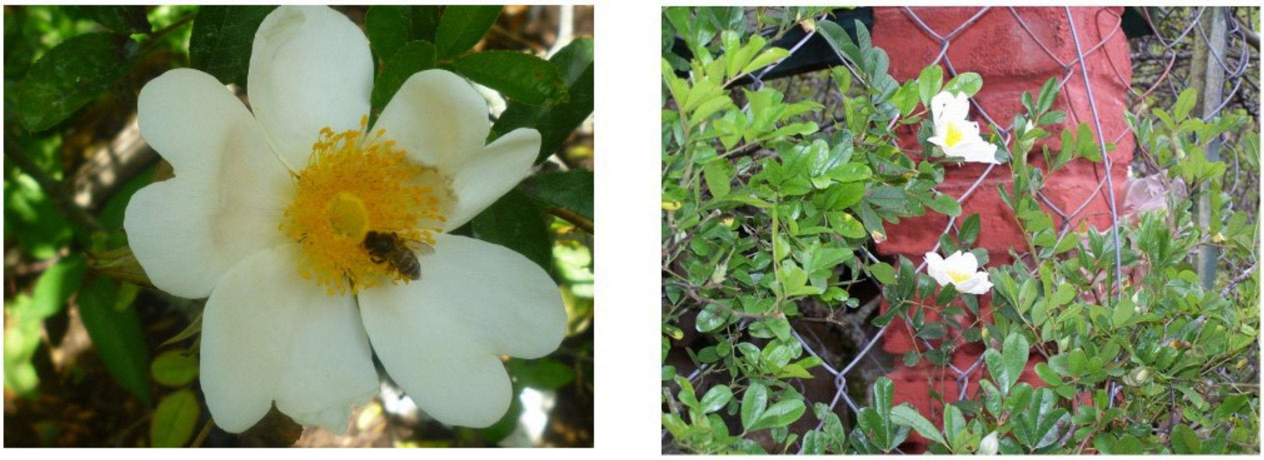


‘ PinkPink ’ : Mrs B R Cant x (Mrs B R Cant x *R.clinophylla*)

First steps in breeding with *Rosa clinophylla*

Two different approaches were adopted in this program. The first of these involved crosses with the well known Tea rose, ‘Mrs B.R. Cant’ which does very well even in the warm areas of India. The second was utilizing the floribunda ‘Little Darling’, a tetraploid which was extensively used by the great breeder, Ralph Moore, in his crosses with different roses, giving a clear indication that it was responsive to unusual pollen.

Taking up breeding with ‘Mrs B.R. Cant’ first, it proved extremely difficult to get viable seed from the cross [‘Mrs B.R. Cant’ x *R. clinophylla* (Bihar form)] – out of over 200 pollinations, less than 50 seeds were obtained, of which only two germinated. The first promptly perished, but we were lucky with the second one-- initially rather weak, it however survived to produce single pink flowers which, surprisingly, repeated. A back cross into ‘Mrs B.R. Cant’ again resulted in a much more vigorous and fertile plant of the Tea rose persuasion in dark pink with semi-double flowers. This seedling, nicknamed ‘Pink-Pink’ figures in our various crosses at the diploid level.



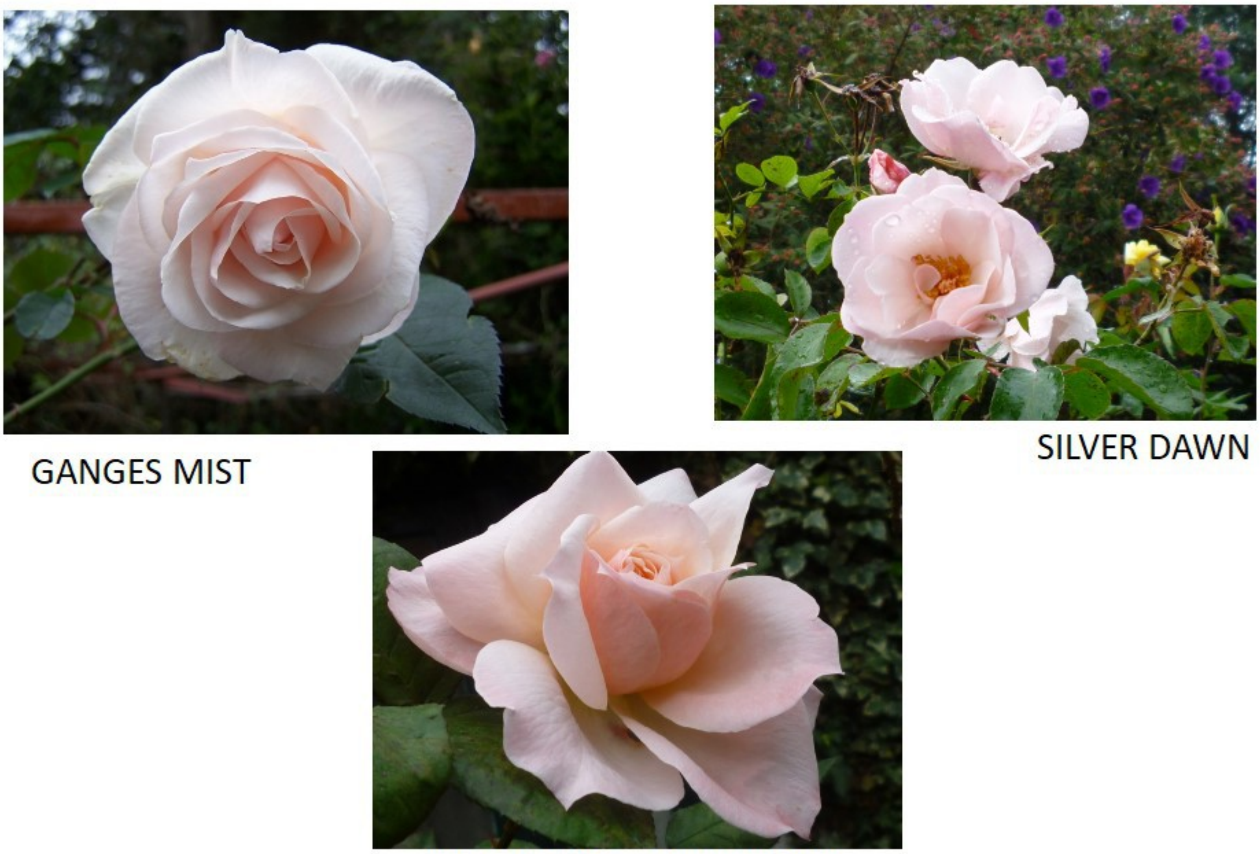
(Rosa clinophylla x Rosa bracteata) - seedling

Work with ‘Little Darling’ was somewhat easier. We did not use *R.clinophylla* itself but a more vigorous hybrid of *R.clinophylla* and *R. bracteata*. The logic of this was that while as we mentioned earlier, *clinophylla* occupies a very moist habitat, *bracteata* prefers drier locations, so we felt that the hybrid seedling would be more adaptable to garden conditions. A large number of crosses were raised quite easily since the two species are closely related. We chose a very vigorous seedling which appeared to be half-way between the two parent species as our pollen parent for breeding with ‘Little Darling’, and from the resultant plants one appeared to have some promise, though rather weak, with pinky orange flowers but repeat blooming.

'E. K. Janaki Ammal' – a *R. clinophylla* – hybrid named to honor a great plant geneticist

We will take up our work using this seedling with ‘Little Darling’ first, as the program was easier. The first step was to cross this into a well known H.T. ’Montezuma’, which is well adapted to the Indian heat. From the cross came a fairly double orange rose, reasonably fertile and vigorous, code-named ‘Virmont’. Re-crossed into the yellow H.T. 'Landora' (Sunblest) produced ‘Landmont’ now released as 'E.K. Janaki Ammal' which was the starting point for a range of garden roses along with some similar seedlings, such as a cross between ‘Arthur Bell’ (yellow floribunda) and the ‘Little Darling’ derivative, (in an effort to introduce yellow colour), as well as a straight cross with the dwarf shrub ‘Bonica’. ‘Bonica’ has, as many of you know, several evergreen roses in its parentage and was introduced in to my breeding line in the hope that evergreen roses would result.

In this background two hybrids were introduced in 2005 – ‘Ganges Mist’ which is a vigorous fully double white flowered pillar rose with large flowers in the old rose form; and a white to creamy pink shrub ‘Silver Dawn’, result of inter-crosssing ‘Bonica’, *clinophylla* and the van Fleet climber ‘Silver Moon’. ‘Silver Moon’ was used in the hope that *R. laevigata* genes figured, as was thought, in its parentage. Unfortunately DNA analysis has shown that ‘Silver Moon’ has no *laevigata* genes.



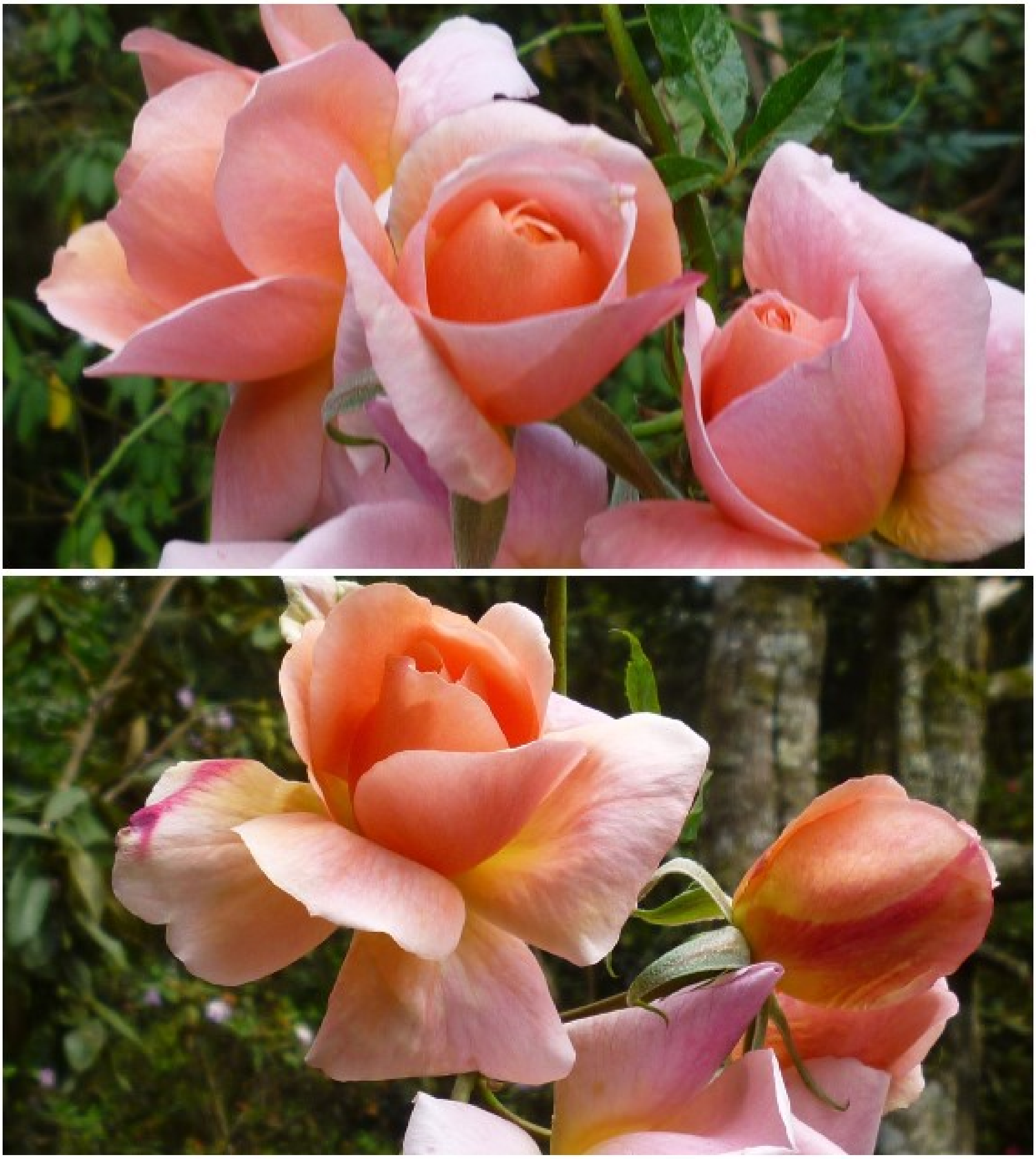
GANGES MIST

SILVER DAWN

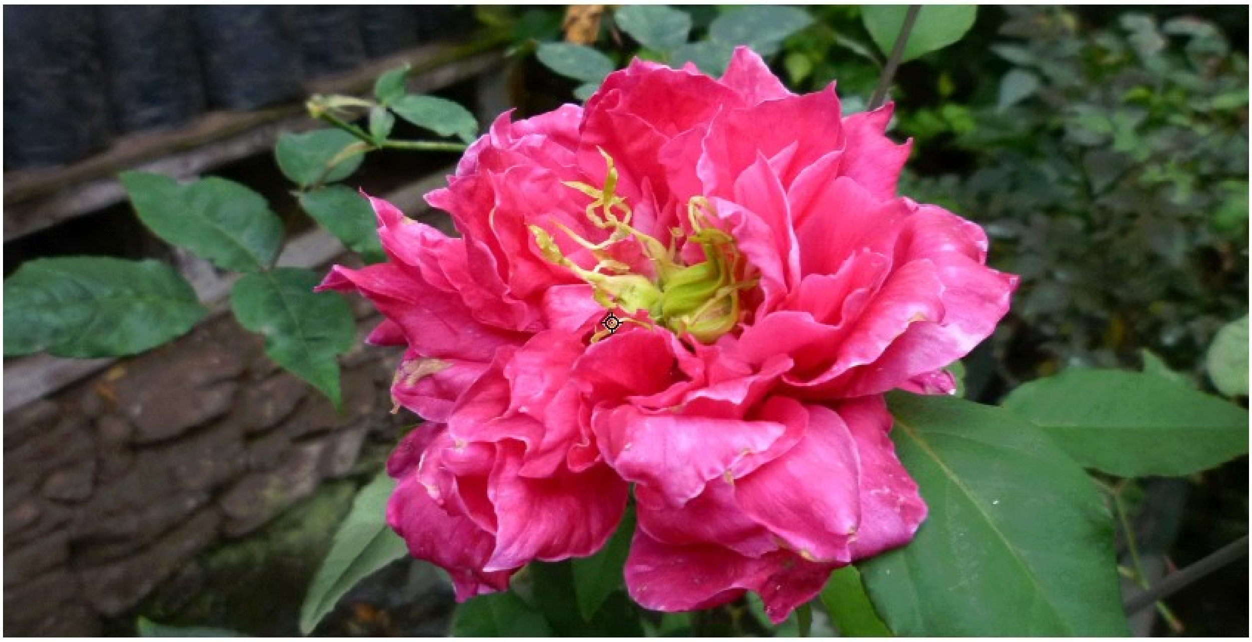
PAT HENRY - - NARENDER

Garden hybrids with *Rosa clinophylla*

The best of this series so far is the repeat flowering shrub ‘Pat Henry’ (‘Narender’ in India), resulting from a cross involving the yellow H.T. ‘Landora’ (‘SunBlest’ in the U.S) with ‘Virmont’ and ‘Ganges Mist’. ‘Pat Henry’ is a healthy plant bearing very fragrant flowers in shades of pink with hints of salmon orange. The flower which has H.T. form at bud stage, opens to old rose form. We speculate that the distinctive fragrance of this rose is the gift of *R. clinophylla*. There are many other roses in the pipeline but we do face a problem in testing for heat resistance, and more will be introduced once this is sorted out. A new release is ‘Takako-Tradition’s Torch’



VirPillar – The Future

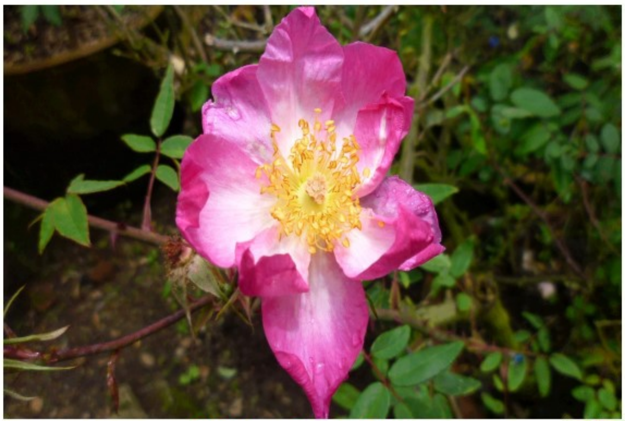


'Rêve d'Or' x 'Pink Pink' x 'Camelia Temple Rose' (China)

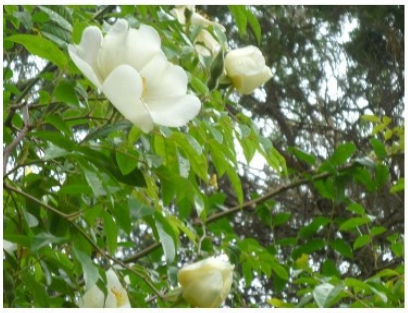
'Ganges Nymph'

Coming to the *clinophylla* line starting from 'Pink-Pink', an interesting result has been the appearance of several comparatively dwarf growing roses but with flowers of almost Tea rose size, arising from the cross with the Noisette, 'Reve d'Or' which does well in India. The first to be released from this group is 'Ganges Nymph', which has flowers of a very unusual form, reminiscent of *R.chinensis serratipetala*. The flowers have a very prominent green eye, which is attractive or not, according to taste.

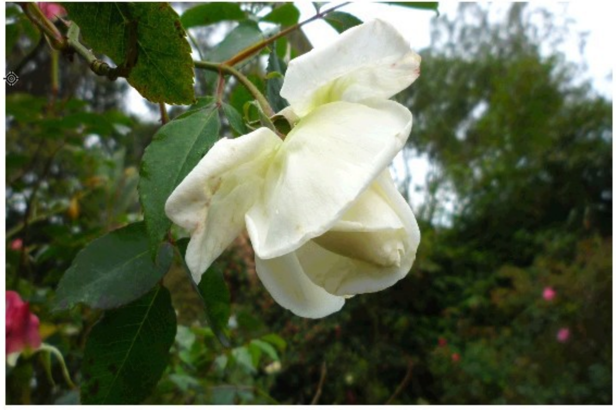
Two other approaches in *clinophylla* breeding have also been tried. The first is to use a complex heat resistant seedling, which has the genes of 'Bonica' and some Tea roses as the seed parent, with 'Pink-Pink'. One result has been a dwarf healthy shrub which flowers freely in shades of pink with a white eye. The second approach is to use a species hybrid seedling of *clinophylla* x *gigantea* with other roses. One interesting result is a cross with 'Mrs B.R.Cant'. A further cross of this with the found China rose, 'Telengana Pink' has led to an elegant H.T. form climber which will be the basis of further work.



2.27 x Pink Pink

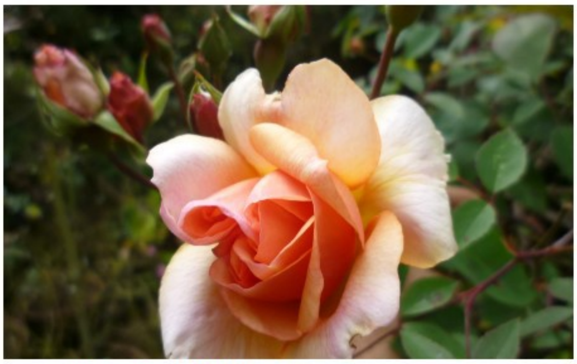


(*R.clinophylla x R.gigantea*)

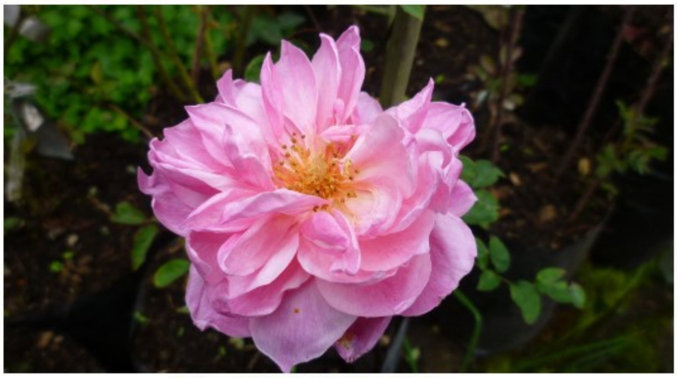


Telengana Pink(found China) x Mrs. B. R. Cant x (*R.clinophylla x R.gigantea*)

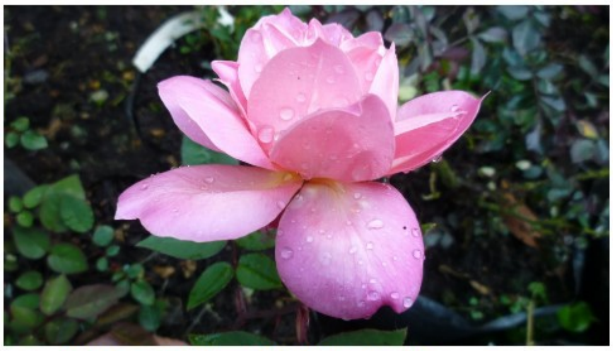
Two further diploid lines



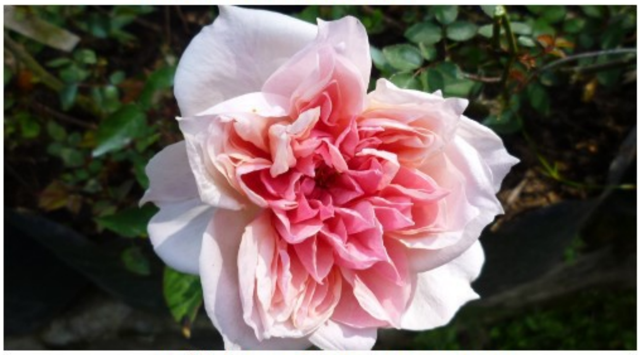
Apricot Patio Tea



Lilac Pink Patio Tea



Water Melon Pink Patio Tea



Old Rose Form Patio Tea

Dwarf cluster flowered patio Teas

Dwarf cluster flowered patio Tea seedlings

Amber Cloud

Manipur Magic

Sir George Watt

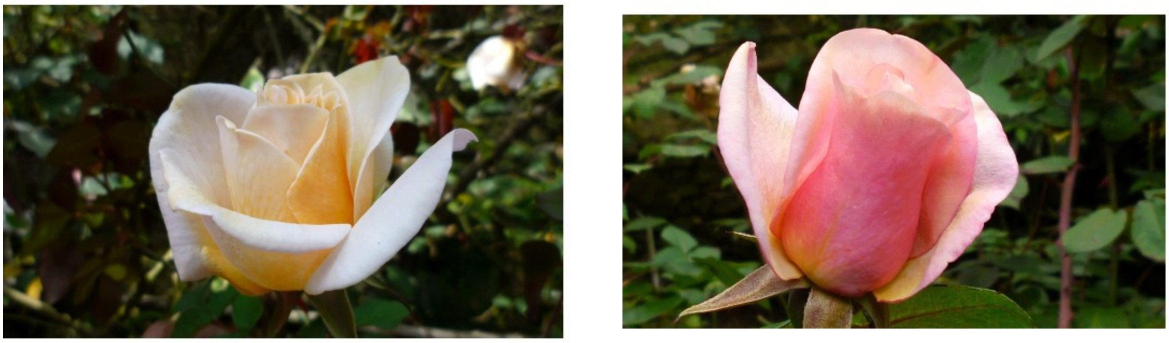
Sir Henry Collett

Diploid Gigantea-Hybrids

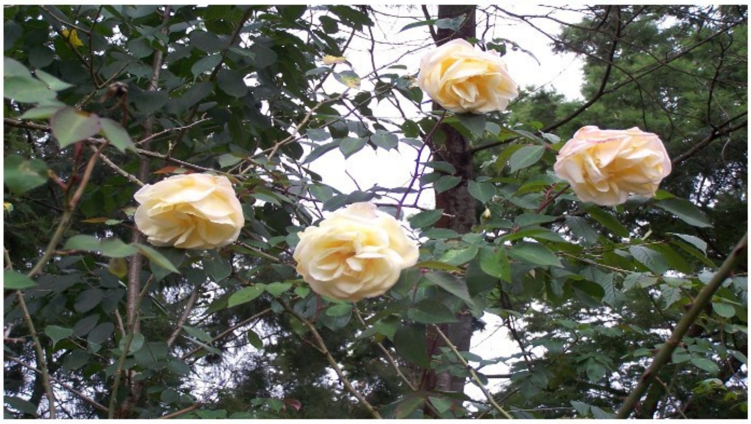
Work with *R.gigantea* has been somewhat easier as genes of this species are present in garden roses though perhaps remotely. Two types of crosses have been used. The first is crosses of *R. gigantea* with ‘Rêve d’Or’ mentioned earlier as doing well in India. The second is a cross of *R. gigantea* into the orange red H.T. ’Carmosine’, which is well adapted to Indian conditions.

Early on we understood the unanticipated bonus of using *R. gigantea* in breeding – the H.T. form so loved by the majority of rose growers is the gift of this species. Crosses with ‘Rêve d’Or’ were unexpectedly successful as several climbers could be raised. These were generally once flowering though as the varieties matured some of them did repeat. One of the most interesting results was ‘Amber Cloud’ with real amber coloured buds and single flowers in cooler weather, and creamy yellow when it got hot. One of our friends wanted this rose to be called Golden Gigantea, which gives an idea of how this plant performs. ‘Amber Cloud’ has been admired both in southern USA and southern Europe. Another important seedling with the cross with ‘Rêve d’Or’ is ‘Manipur Magic’, a fully double light yellow rose looking uncommonly like ‘Maréchal Niel’ on steroids. This is a vigorous climber with lovely bronzy green foliage as an added attraction.

Two sister seedlings with double flowers, one creamy yellow with a much darker yellow base and the other, ivory, were named ‘Sir George Watt’ and ‘Sir Henry Collett’ to honour the two plant explorers who discovered *R. gigantea* in Manipur and Myanmar.



Maebara's Dream **Frank Kingdon Ward**



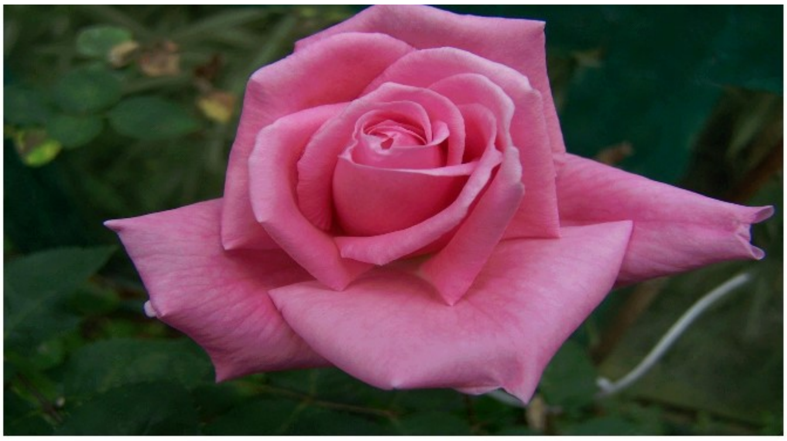
Evergreen Gene

First hybrids of R. gigantea – triploid / tetraploid group

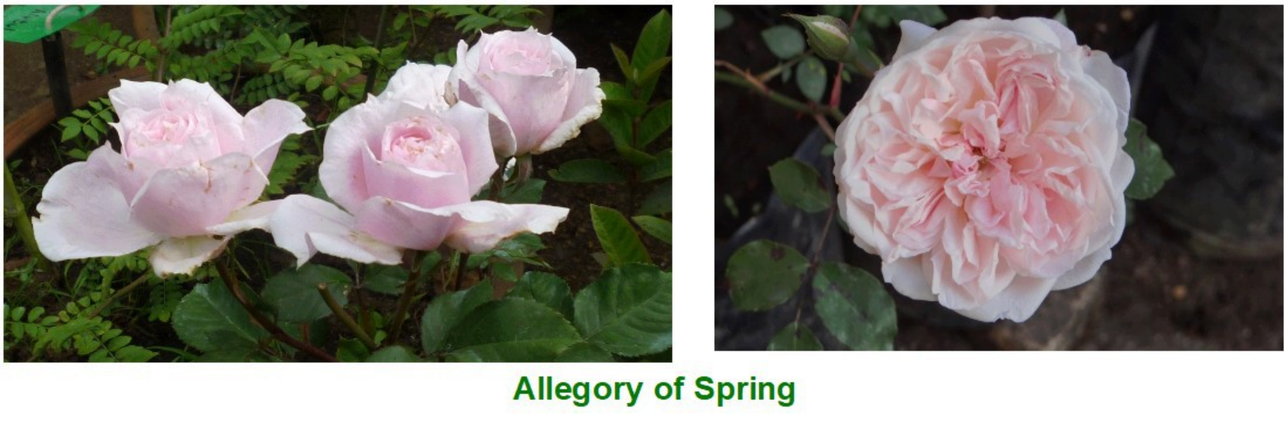
Coming to the crosses with ’Carmosine’ we were lucky that the lovely broad petals of this rose were inherited by the crosses. One of the most charming, with beautiful H.T. form flowers in shades approaching the colour of ‘Lady Hillingdon’ was named 'Maebara’s Dream’, as a token of our appreciation for the great encouragement we had received from Katsuhiko Maebara, the guiding spirit behind the Sakura Heritage Rose Garden near Tokyo, Japan.

A second seedling with very large H.T. form flowers in apricot yellow to creamy yellow was introduced as ‘Evergreen Gene’ to honour or friend Gene Waering of USA who does so much to popularize the idea of evergreen roses for warm climates.

The third of the series is a spectacular yellow and pink climber called ‘Frank Kingdon Ward’ after the great plant explorer who rediscovered *R. gigantea* in the mountains of Manipur.



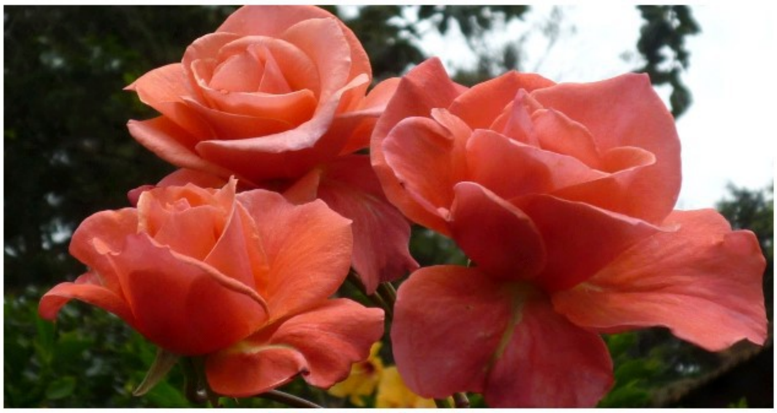
Naga Belle



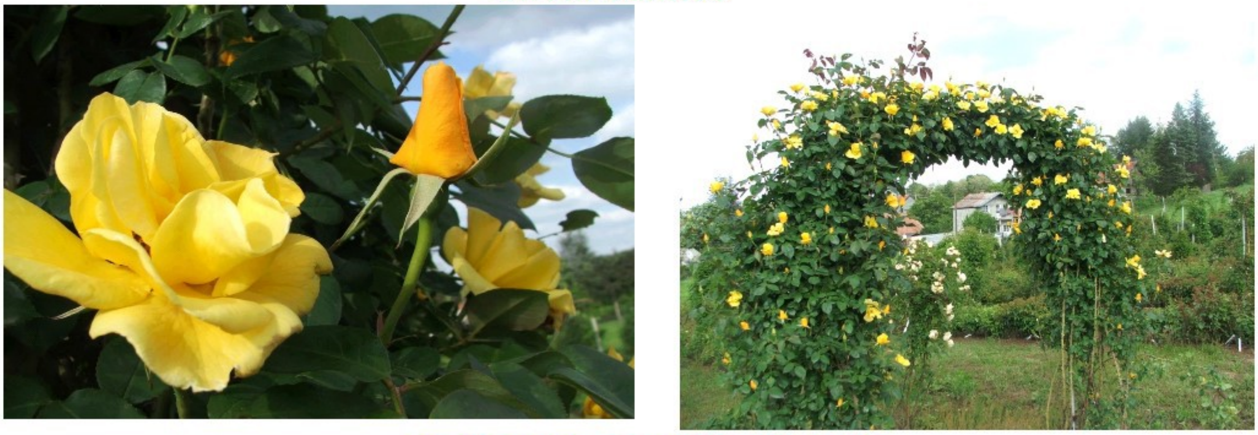
Allegory of Spring

Newer hybrids of R. gigantea – Repeat Flowering Shrubs

Meanwhile we made the interesting observation that the well known rose 'Carefree Beauty', bred by Griffith Buck of the U.S. for cold hardy climates, had, additionally, the quality of being well adapted to heat. A cross of 'Carefree Beauty' with 'Maebara's Dream' produced the shocking pink, repeat flowering H.T. form shrub with comparatively restrained growth for a gigantea (only around 5 feet) named 'Naga Belle', named for the Naga tribe of Manipur area. A similar cross of 'Carefree Beauty' and 'Evergreen Gene' led to 'Allegory of Spring' with delicately beautiful H.T. form flowers in shell pink opening to old rose form, again repeat flowering.



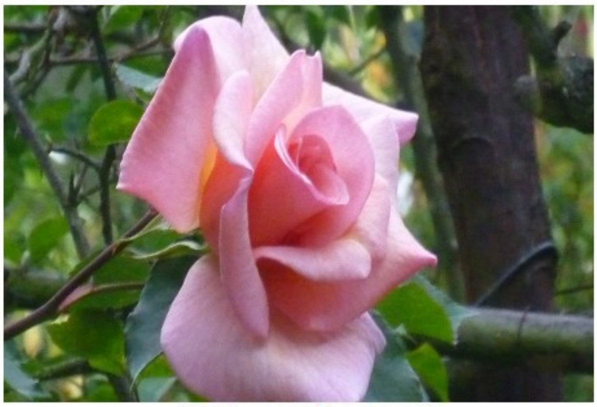
Sirohi Sunrise

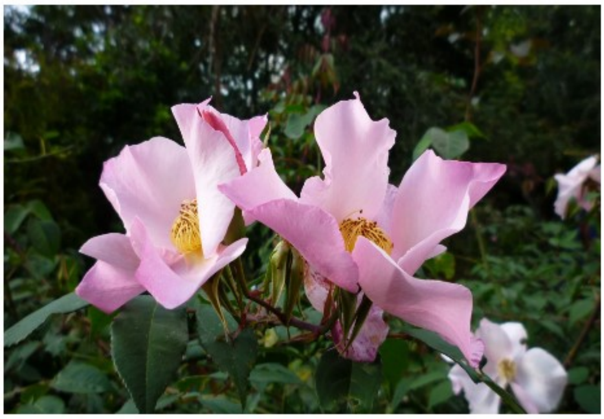


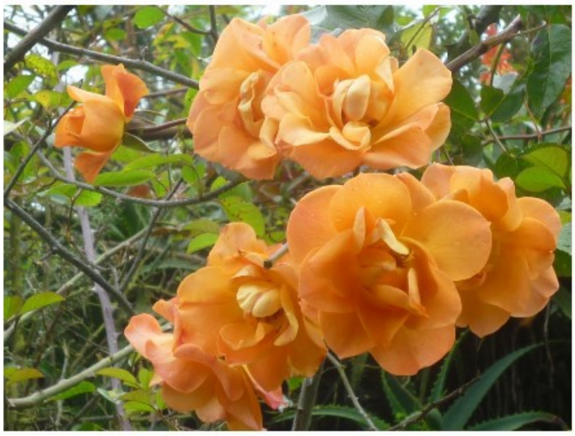
GoldenThreshold (in Serbia)

More hybrids

The use of the floribunda 'Brown Velvet' with 'Maebara's Dream' produced 'Sirohi Sunrise' a pillar rose with browny orange blooms, which in turn crossed with 'Golden Showers' led to 'Golden Threshold', a compelling shade of dark yellow with anthers of brown verging on chrysanthemum crimson. This climber performs well in many parts of the world. I show you a photograph taken in Serbia.


“Sakura Sunset”

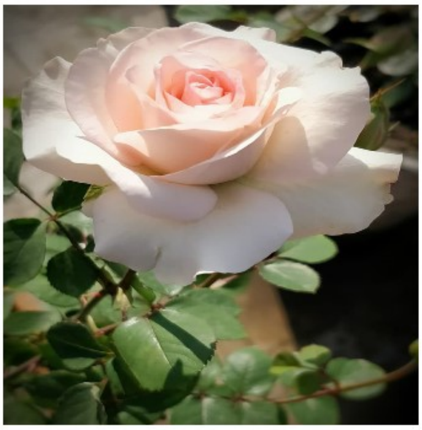

“Rebecca’s Choice”


“Karrie’s Rose”

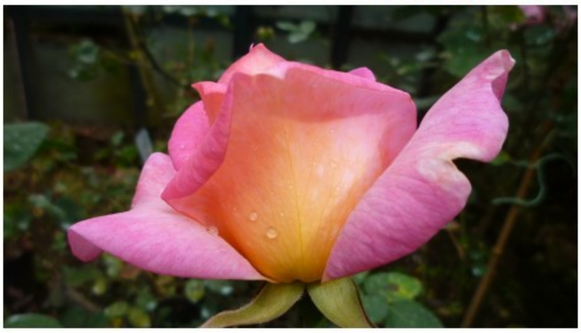
Further Crosses with climbing Giganteas

Used in further crosses ‘Golden Threshold’ and other climbing giganteas are yielding several new climbers in different colours ('Karrie’s Rose', 'Mia Grondahl' etc) and also a range of shrub roses in eye catching colours. Many other hybrid *giganteas* using different combinations of modern roses with our *gigantea* strains are in the pipe line. We show you some Hybrid Giganteas of the shrub group.

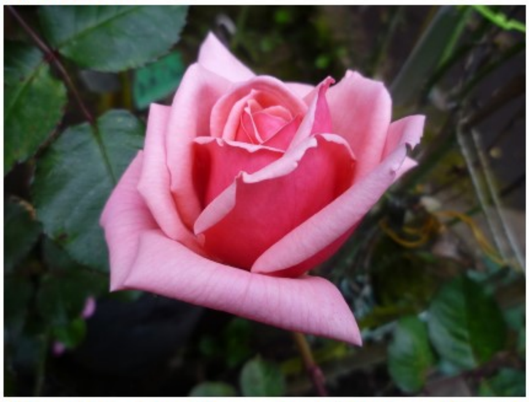
- Repeat flowering Gigantea shrubs: 'Kindly Light', Dr. N.C. Sen', 'Rose Manju', 'Agnimitra', 'Allegory of Spring', 'Helga's Quest', 'Adrianna Zarri', 'Churachand', Pink Prelude', 'Emina'
- Repeat flowering Gigantea shybrids: 'Alister's Gift', 'Lanjique Rose', 'Out of India', 'Remembering Nico'



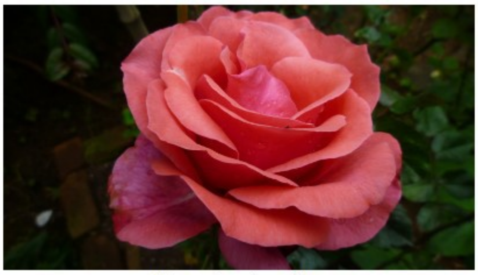
“Kindly Light”/ “Swami Vinayananda”



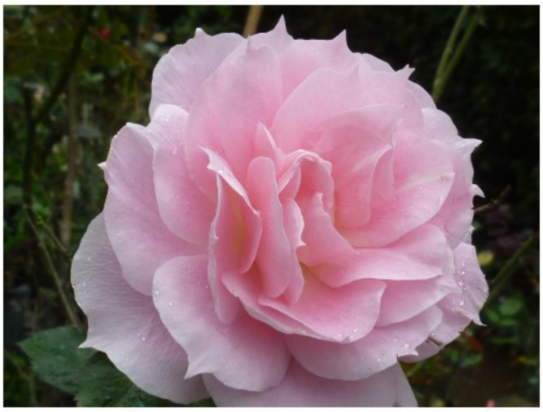
“Maria Cecilia Freeman”/ “Dr. N.C.Sen”



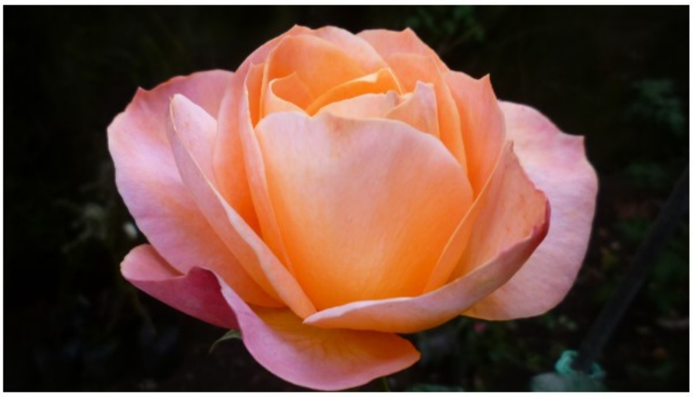
“Dr.Malcolm Manners”/ “Rose Manju”



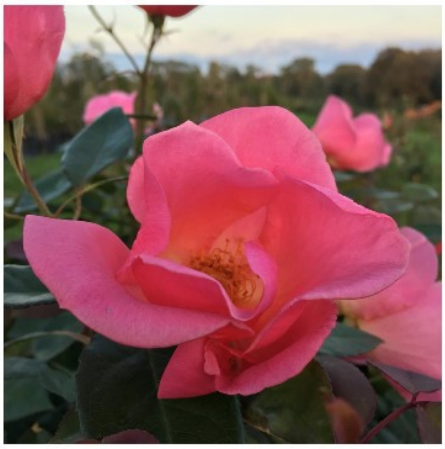
“Agnimitra”



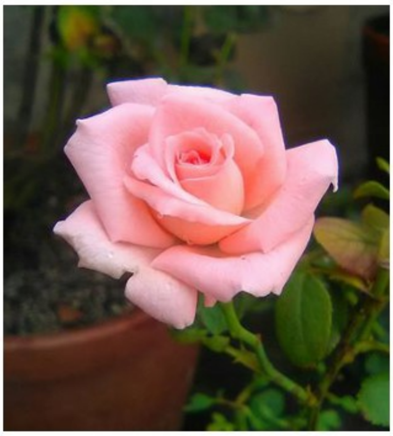
“Allegory of Spring”



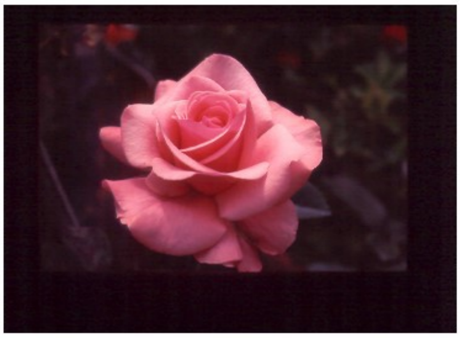
“Helga’s Quest” / “Vishnupriya”



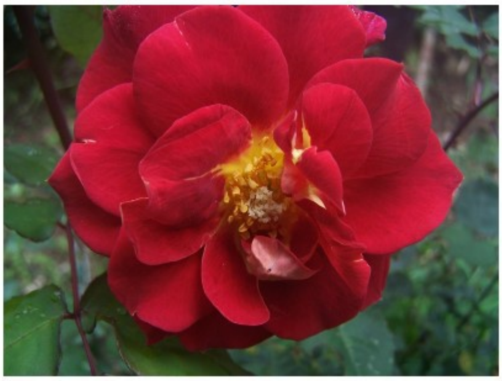
"Adrianna Zarri"



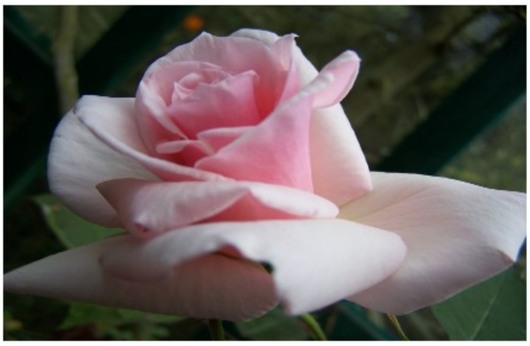
"Churachand "



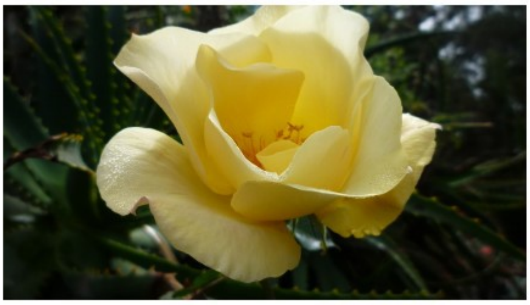
"Pink Prelude"



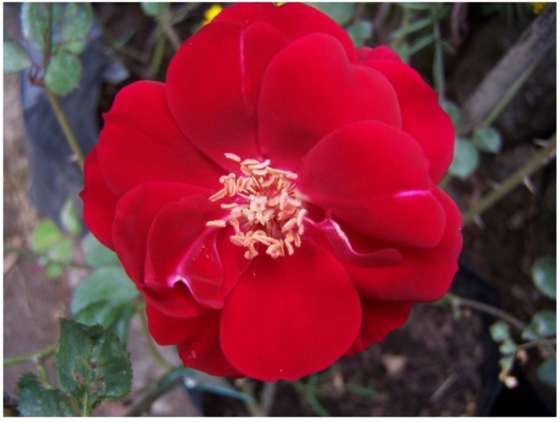
"Emina"



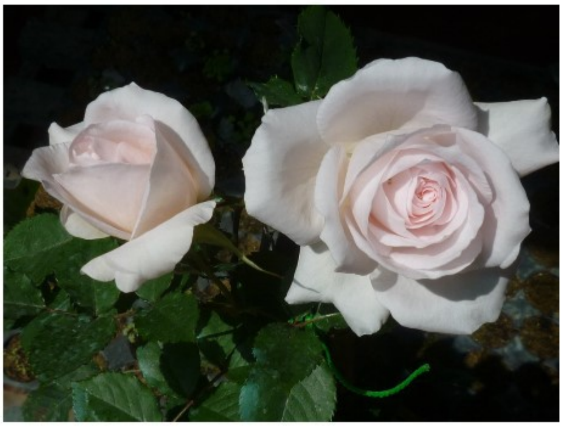
ALISTER'S GIFT



LANJIQUE ROSE

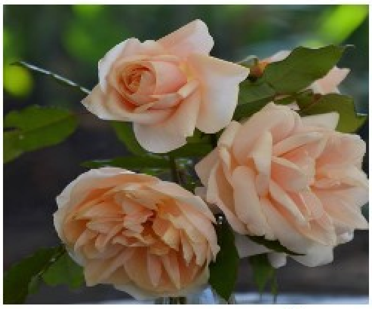


OUT OF INDIA



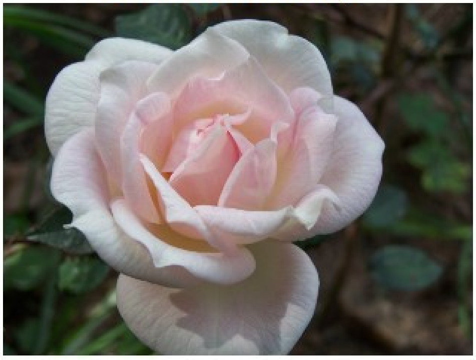
REMEMBERING NICO

As many of you are aware the Tea roses are closely connected with *R. gigantea* and it is no surprise that several new Tea roses have been hybridized arising from the same type of crosses. One of them is ‘Faith Whittlesey’ which does well in warm climates, another is the shell pink with a hint of apricot ‘Lotus Born’, ‘Aussie Sixer’, apricot yellow has been named in honour of the six Australian ladies who have written the new classic book on Tea roses. We show you pictures of these as well as other released Tea roses.

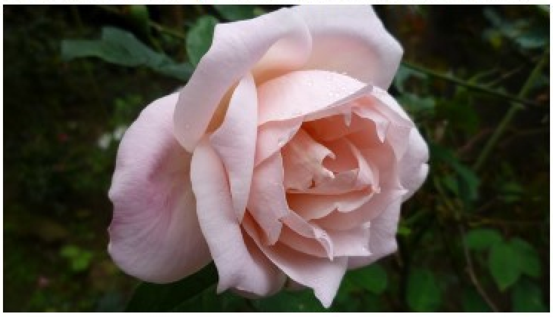


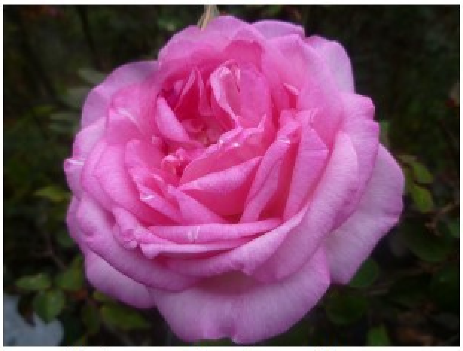
“Aussie Sixer”

“Faith Whittlesey”

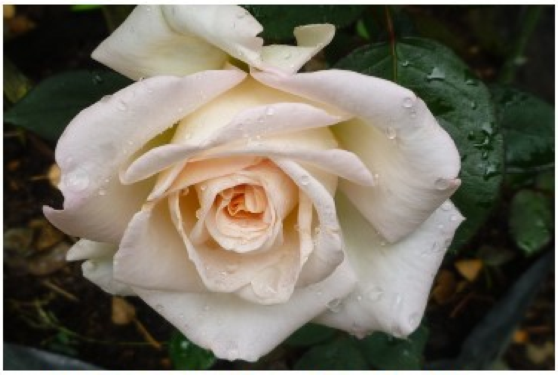


“Lotus Born”/ “Padmasambhava”



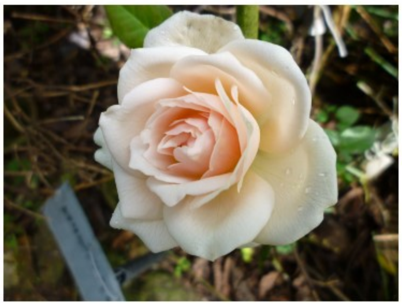


“Maura la Cava”

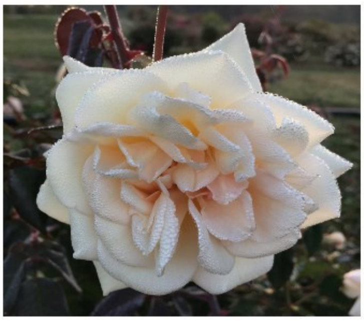


“Remembering Cochet”

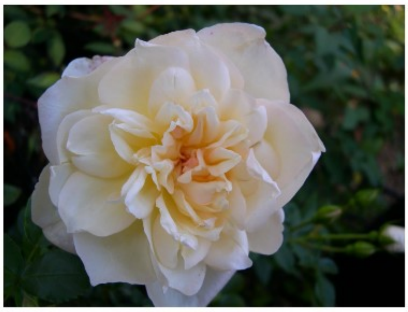
Tea Roses



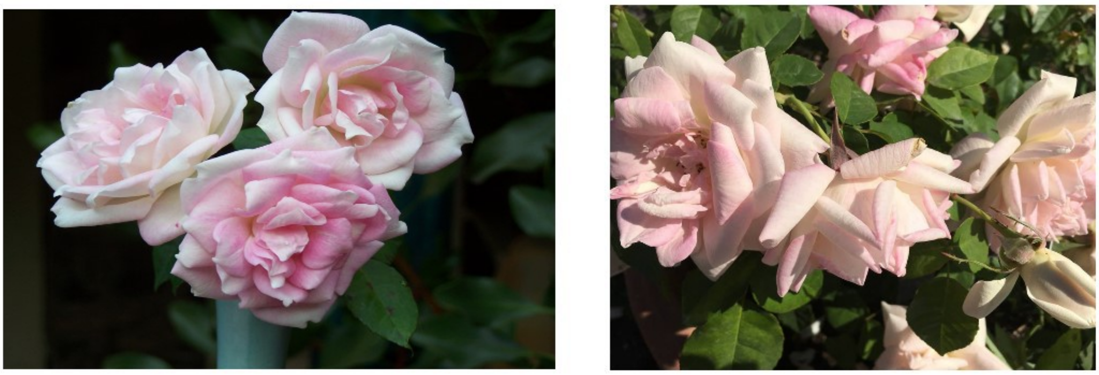
KRISHNA'S PEACH



"APRICOT TEA"

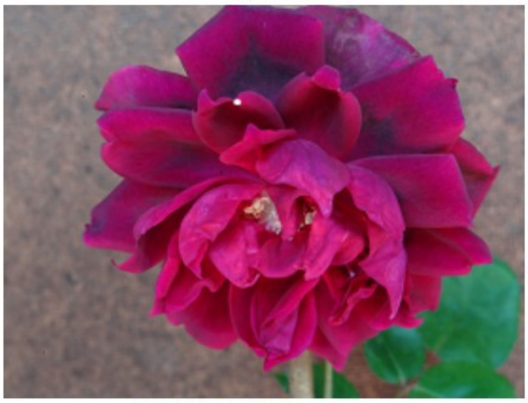


DIXIE BEAUTY

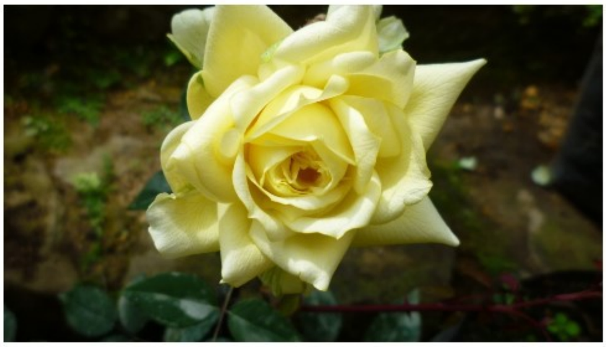


GARNET CREST

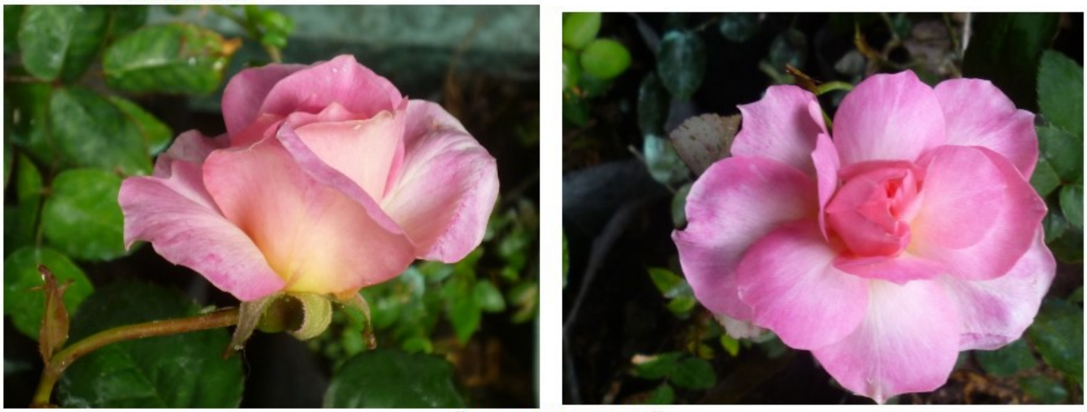
Tea Roses



"VIRLOUIS"



"VIRREVE"



"VIRBRABANT"

NewTea Roses

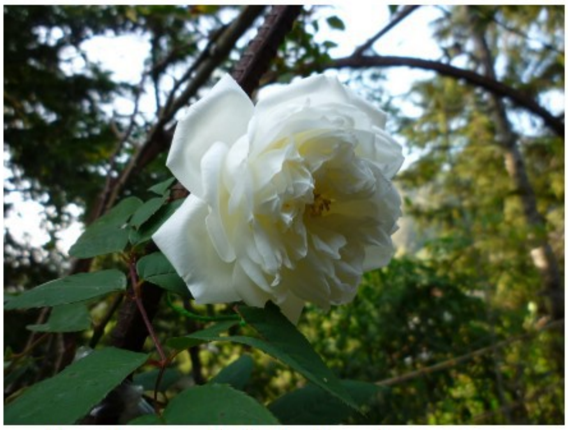
Among the new Teas/Chinas which are still under cultivation are some of ‘different’ colours. One of the most distinctive is ‘VIRLOUIS” with flowers of darkest red with purple edges. Another is “VIRREVE” (Rêve d”Or x Aussie Sixer) and a third is an interesting combination of 'Duchess du Brabant' with *R. clinophylla*. We show you pictures of these.

LAEVIGATA ROSEA

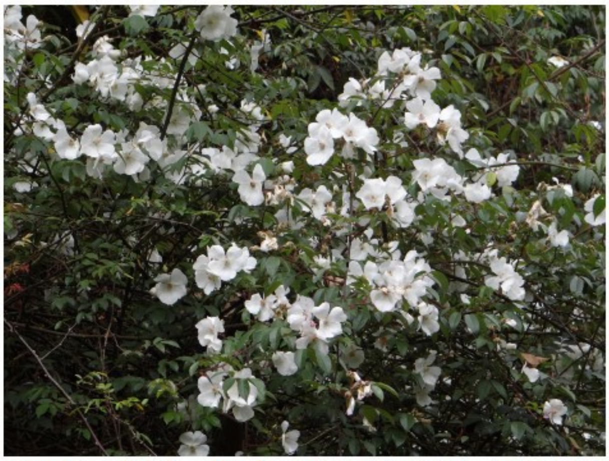
“Rose Legend Akira Ogawa”

The charme of Single Roses

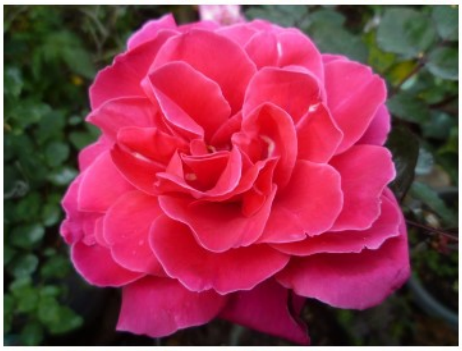
In conclusion we would like to appeal to younger rose breeders to take up the challenge of creating better roses for warm climates. The future belongs to those who take this up seriously



'Leschenault de la Tour'
(R. leschenaultia hybrid)



'Lady Jane Hooker' – (R. longicuspis X R. gigantea)



'Lyndy's First Love' (R. Edward hybrid)